

THE INVENTION CLAIMED IS:

1. A non-stick surface comprising a porous metal-ceramic layer wherein the pores are impregnated with an inert release agent and wherein said surface comprises a plurality of flat, bare metal-ceramic areas interspaced between and substantially co-planar with surfaces of the impregnated release agent.
2. The non-stick surface of claim 1 applied to cookware.
3. Cookware comprising a substrate having a non-stick surface applied on a cooking surface of the cookware, said non-stick surface comprising a plurality of flat, bare metal-ceramic areas interspaced between and substantially co-planar with surfaces of the impregnated release agent.
4. The cookware of claim 3 in the form of a fry pan, saucepan, sauté pan, stockpot, stir fry pan, grill pan, griddle or waffle plate.
5. The cookware of claim 3 wherein the porous metal-ceramic layer is one selected from the group comprising chromium oxide, silicon carbide, titanium oxide, titanium-alumina, and the like, having a porosity of between 5-15 volume %.
6. The cookware of claim 3 wherein the inert release agent is a cured silicon resin.
7. The cookware of claim 3 wherein the substrate is made from a composite multi-layered construction, including one or more layers of aluminum and stainless steel.
8. The cookware of claim 3 wherein the metal-ceramic layer has a thickness of about 0.002 to 0.006 inch and is applied by one of arc spraying, plasma spraying or oxyacetylene spraying.

9. The cookware of claim 3 wherein the non-stick surface has a polished surface.

10. The cookware of claim 9 wherein the polished surface has a smoothness of less than about 10 ra.

11. A method for making cookware having a non-stick surface, comprising the steps of:

- (a) providing a substrate in a desired cookware configuration;
- (b) preparing a surface of the substrate to remove dirt, grease, or other surface impurities;
- (c) applying a metal-ceramic layer to the prepared surface of step (b) to provide a controlled porosity in said metal-ceramic layer;
- (d) impregnating pores of said metal-ceramic layer with a liquid release agent;
- (e) thermally curing the liquid release agent; and
- (f) smoothing the impregnated metal-ceramic layer to provide a non-stick surface defined by flat bare metal-ceramic portions and flat impregnated cure release agent areas substantially co-planar therewith.

12. The method of claim 11 wherein the metal-ceramic layer is one selected from the group comprising chromium oxide, silicon carbide, titanium oxide and titanium-alumina and is applied by one of arc spraying, plasma spraying or oxyacetylene spraying and has a porosity of between 5-15% by volume.

13. The method of claim 11 wherein the metal-ceramic layer is applied to a thickness of between 0.002 to 0.006 inch.

14. The method of claim 11 wherein the thickness of the metal-ceramic layer is about 0.004 inch.

15. The method of claim 11 wherein the liquid release agent is silicone resin, and wherein the impregnating step (d) takes place under a vacuum, and wherein the thermal curing step (e) takes place at a temperature of about 550°F.

16. The method of claim 11 wherein the smoothing step (f) includes mechanical polishing to provide a non-stick surface having a surface smoothness of less than 10 ra.